

to overflow their banks in central, northern, and western portions of Indiana.

On the 2d the Mississippi River continued to rise from Dubuque, Iowa, to the Gulf. A crevasse occurred in the New Hope levee in Saint James parish, La., and at Belle Chasse, about 25 miles below New Orleans, La. The Arkansas River rose rapidly and passed the danger-line at Fort Smith, Ark. At Little Rock, Ark., the river was rising and approaching the danger-line. Floods were reported in the Gasconade and Osage rivers, Missouri. The Mississippi River continued to rise from Davenport, Iowa, to Vicksburg, Miss., and was stationary from Vicksburg to the Gulf. On the 3d the Arkansas River rose rapidly and passed the danger-line at Little Rock in the early morning. Flood conditions continued along the Red River.

On the 5th heavy rains caused disastrous floods in streams in northwestern Pennsylvania. Great destruction by flooding streams was reported about Oelrichs, S. Dak. On the 6th the Mississippi River fell below the danger-line at Dubuque. At Keokuk, Iowa, the river was rising slowly and a break was reported in the Warsaw levee, 18 miles south of Keokuk. A break was reported in Ascension levee about 6 miles above Donaldsonville, La. At Little Rock, Ark., the Arkansas River reached its highest stage, 25.8 feet, in the morning.

On the 7th the Mississippi River fell below the danger-line at Davenport, and the Arkansas River fell below the danger-line at Fort Smith. A crevasse was reported at Egg Bend, Avoyelles parish, La. On the 8th a break in the levee was reported at Commins Bend, 9 miles below Alexandria, La. The upper Mississippi river was falling slowly. On the 11th the river reached a maximum stage of 17.6 feet at New Orleans, La., the highest stage by 0.5 foot ever noted at that point. On the 13th several small crevasses occurred in the Louisiana levees. The Missouri River was rising at Fort Buford, N. Dak. On the 17th the river rose above the danger-line at Dubuque, Iowa, and fell below the danger-line at Saint Louis, Mo.

On the 18th the Mississippi River rose above the danger-line at La Crosse, Wis. The morning of the 19th the levee back of the town of Bayou Sara broke and the town was submerged to a depth of 10 feet. The Ohio River fell below the danger-line at Cairo, Ill., and the Red River fell below the danger-line at Shreveport, La. On the 20th the Mississippi River fell below the danger-line at Memphis, Tenn. On the 21st a small crevasse occurred in the Hermitage levee about 3 miles below Donaldsonville, La. On the 22d the Mississippi River rose above the danger-line at Davenport, Iowa, and fell to the danger-line at Keokuk. Disastrous floods were reported in streams in Vermont.

On the 23d floods were reported in rivers and streams in Illinois. On the 24th the Mississippi River was rising, and 2.6 feet above the danger-line at Dubuque, Iowa. At Davenport, Iowa, the river was rising and at 6 p. m. stood at 19.1 feet, 4.1 feet above the danger-line. Lower Rock Island was

flooded and many persons were compelled to abandon their houses. At Fort Buford, N. Dak., the Missouri River was rising and at 8 a. m. the gauge reading was 18.1 feet, the highest stage on record at that station.

On the 27th the river reached 19.4 feet at Davenport, Iowa, the highest stage recorded at that station; it remained stationary in the morning and began to fall in the afternoon; much damage was caused to merchandise stored in cellars; railroads along the river front were 2 feet under water, and mills, gas works, and factories suspended operations. On the 29th the river reached 19.2 feet at Keokuk, and became stationary. At the close of the month the Mississippi River was above the danger-line at La Crosse, Wis., Dubuque, Davenport, and Keokuk, Iowa, Helena and Arkansas City, Ark., Vicksburg, Miss., and New Orleans, La.

#### STAGE OF WATER IN RIVERS.

The following table shows the danger-points at the various river stations; the highest and lowest stages for the month, with the dates of occurrence, and the monthly ranges:

*Heights of rivers above low-water mark, June, 1892 (in feet and tenths).*

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
<i>Red River.</i>						
Shreveport, La. ....	29.9	34.4	1	21.9	30	12.5
<i>Arkansas River.</i>						
Fort Smith, Ark. ....	22.0	25.9	4	5.2	29	20.7
Little Rock, Ark. ....	23.0	25.8	6	9.0	30	16.8
<i>Missouri River.</i>						
Fort Buford, N. Dak. ....		18.1	26	11.3	9	6.8
Bismarck, N. Dak. ....		13.7	27, 28	7.4	1	6.3
Pierre, S. Dak. ....	14.0	8.4	30	1.7	1	6.7
Stout City, Iowa ....	18.7	15.3	30	7.5	5	7.8
Omaha, Nebr. ....	18.0	14.9	30	9.2	6	5.7
Kansas City, Mo. ....	21.0	19.0	27	13.4	8	5.6
<i>Mississippi River.</i>						
Saint Paul, Minn. ....	14.0	11.5	1	8.6	15, 30	2.9
La Crosse, Wis. ....	11.8	11.2	1	9.6	16	1.6
Dubuque, Iowa ....	16.0	18.6	24	14.3	14	4.3
Davenport, Iowa ....	15.0	19.4	27	12.1	1, 16	7.3
Keokuk, Iowa ....	14.0	19.3	29	13.4	1	5.9
Hannibal, Mo. ....	17.0	20.0	30	15.2	1	4.8
Saint Louis, Mo. ....	30.0	34.8	5	20.2	23, 24	8.6
Cairo, Ill. ....	40.0	44.6	1	29.5	26, 27	15.1
Memphis, Tenn. ....	33.0	34.4	2, 3	24.8	30	9.6
Vicksburg, Miss. ....	41.0	48.4	2-5	46.6	30	1.8
New Orleans, La. ....	13.0	17.6	11	16.2	30	1.4
<i>Ohio River.</i>						
Parkersburg, W. Va. ....	38.0	21.8	8	6.9	19	14.9
Cincinnati, Ohio ....	45.0	31.8	12	15.0	21	16.8
Louisville, Ky. ....	24.0	11.8	12	7.4	22	4.4
<i>Cumberland River.</i>						
Nashville, Tenn. ....	40.0	14.1	3	4.1	22	10.0
<i>Tennessee River.</i>						
Chattanooga, Tenn. ....	33.0	9.3	6, 7	4.3	19, 20	5.0
<i>Monongahela River.</i>						
Pittsburg, Pa. ....	29.0	15.8	6	3.3	28, 29	12.5
<i>Savannah River.</i>						
Augusta, Ga. ....	32.0	17.3	6	7.0	1	10.3
<i>Willamette River.</i>						
Portland, Oregon. ....	15.0	19.3	24	16.1	8, 9	3.2
<i>Susquehanna River.</i>						
Harrisburg, Pa. ....	17.0	12.5	5	3.2	28	9.3
<i>Alabama River.</i>						
Montgomery, Ala. ....	48.0	7.0	9	2.3	20	4.7

#### ATMOSPHERIC ELECTRICITY.

##### AURORAS.

Auroras were reported as follows: 1st, Wellesley, Mass.; Carthage, S. Dak. 2d, Seymour, Ind.; North Billerica, Mass.; Helena, Mont.; Egg Harbor City, N. J.; Webster, S. Dak. 3d, Cambridge, Mass.; Marquette, Mich.; Duluth, Minn.; Havre, Mont.; Medford, Wis. 7th, Miles City, Mont. 10th, Fergus Falls, Minn.; Travare, S. Dak. 11th, Fergus Falls, Minn. 12th, Bedford City, Va. 13th, Heath, Mass. 16th, Ithaca, N. Y. 17th, Eastport, Houlton, and Orono, Me. 20th, Fergus Falls, Minn.; Bismarck, N. Dak. 22d, Ottawa, Ill.

23d, Oswego, N. Y. 24th, Alpena, Mich.; Saint Vincent,

Minn.; Saegerstown, Pa. 25th, Garrettsville, Ohio. 26th, Gallatin, N. Dak. 27th, Amana and Belle Plaine, Iowa; Excelsior Springs, Mo.; Helena, Mont.; Carthage, S. Dak.; New Whatcom and Tatoosh Island, Wash. 28th, Amana, Iowa; Mayfield, Me.; Cambridge, Mass.; Sault de Ste. Marie, Mich.; Oswego, N. Y.; Cadiz, Harvey, and Medford, Wis. 29th, Medford, Wis. 30th, Alta, Iowa; Colfax, Wash.; Sparta and Valley Junction, Wis.; Sault de Ste. Marie, Mich.

##### THUNDERSTORMS.

Description of the more severe thunderstorms reported for the month is given under "Local storms."

Thunderstorms were reported as follows: East of the Rocky Mountains they were reported in the greatest number of

states, 35, on the 16th, 22d, and 27th; in 34 on the 30th; in 33 on the 6th, 23d, and 24th; in 32 on the 16th and 18th; in 31 on the 14th and 21st; in 20 to 30 on the 1st, 2d, 3d, 5th, 7th, 8th, 9th, 15th, 19th, 20th, 25th, 26th, 28th, and 29th; in 10 to 19 on the 4th, 10th, 12th, and 13th; and in 9 on the 11th.

East of the Rocky Mountains thunderstorms were reported on the greatest number of dates, 30 in Florida; on 20 to 29 in Alabama, Arkansas, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, and Wisconsin; on 10 to 19 in Connecticut, Indian Territory, Maine, Nebraska, New Hampshire, North Dakota, Oklahoma, Rhode Island, and Vermont. The only states in which thunderstorms were re-

ported on less than 10 dates were, the District of Columbia on 9 dates and Montana on 7.

West of the Rocky Mountains thunderstorms were reported in Arizona on the 23d to 30th; in California on the 8th, 9th, 12th, 13th, 24th, and 29th; in Colorado on the 3d, 4th, 5th, 14th to 19th, 22d, 23d, 24th, 29th, and 30th; in Idaho on the 9th to 12th, 17th, and 30th; in Nevada on the 9th, 10th, 11th, 13th to 16th, and 27th to 30th; in New Mexico on the 3d, 14th, 16th, 17th, 19th, 20th, 22d to 27th, and 30th; in Oregon on the 12th, 13th, and 14th; in Utah on the 10th, 13th, 14th, 15th, 29th, and 30th; in Washington on the 1st, 5th, 6th, 7th, 9th, 11th, 12th, 13th, 21st, 29th, and 30th; in Wyoming on the 3d, 4th, 10th, 14th, 16th, 18th, 24th, 25th, and 29th. There were no states or territories in which thunderstorms were not reported.

### STATE WEATHER SERVICES.

[Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.]

The following extracts and summaries are republished from reports for June, 1892, of the directors of the various state weather services:

#### ALABAMA.

**Temperature.**—The mean was 0.4 above the normal; maximum, 105, at Daphne, 13th; minimum, 56, at Brewton, 3d, at Florence, 26th, and at Newburgh, 28th; greatest monthly range, 47, at Wiggins; least monthly range, 25, at Pittsboro.

**Precipitation.**—The average was 0.27 above the normal; greatest monthly, 9.48, at Daphne; least monthly, 1.44, at Bermuda.

**Wind.**—Prevailing direction, southeast.—*P. H. Mell, Observer, Weather Bureau, Auburn, director.*

#### ARIZONA.

**Temperature.**—Maximum, 122, at Fort Mohave, 27th; minimum, 29, at Fort Apache and Holbrook, 11th; greatest monthly range, 74, at Fort Apache; least monthly range, 30, at Dos Cabezas.

**Precipitation.**—Greatest monthly, 2.75, at Chiricahua Mountains; least monthly, 0.00, at a number of stations.

**Wind.**—Prevailing direction, southwest.—*J. C. Hayden, Observer, Weather Bureau, Tucson, director.*

#### ARKANSAS.

**Temperature.**—The mean was normal; maximum, 103, at Keesees Ferry, 14th; minimum, 40, at Rogers, 2d; greatest monthly range, 55, at Rogers; least monthly range, 33, at Greenville, Miss.

**Precipitation.**—The average was 0.21 below the normal; greatest monthly, 6.90, at Camden; least monthly, 0.72, at Hope.

**Wind.**—Prevailing direction, south.—*M. F. Locke, Commissioner of Agriculture, Little Rock, director; F. H. Clarke, Observer, Weather Bureau, assistant.*

#### CALIFORNIA.

**Temperature.**—Maximum, 117, at Needles, 21st; minimum, 32, at Fort Jones, 2d; greatest monthly range, 65, at Orangevale and San Ardo; least monthly range, 28, at Pleasanton.

**Precipitation.**—Greatest monthly, 0.98, at Susanville; least monthly, 0.00, at a number of stations.

**Wind.**—Prevailing direction, west.—*J. A. Barwick, Observer, Weather Bureau, Sacramento, director.*

#### COLORADO.

**Temperature.**—The mean was normal; maximum, 106, at Robb, 20th; minimum, 12, at Cumbres, 4th; greatest monthly range, 73, at Downing; least monthly range, 47, at Livermore.

**Precipitation.**—The average was 0.15 above the normal; greatest monthly, 8.70, at Gold Hill; least monthly, 0.00, at Arboles, Rico, and Villa Grove.

**Wind.**—Prevailing direction, southwest.—*W. S. Miller, Observer, Weather Bureau, Denver, director.*

#### FLORIDA.

**Temperature.**—Maximum, 100, at Bristol, 11th, and at Micco, 22d; minimum, 62, at Orange City, 14th; greatest monthly range, 34, at Archer; least monthly range, 17, at Key West.

**Precipitation.**—Greatest monthly, 23.25, at Hypoluxo; least monthly, 3.27, at Saint Augustine.

**Wind.**—Prevailing direction, southeast.—*E. R. Demain, Observer, Weather Bureau, Jacksonville, director.*

#### GEORGIA.

**Temperature.**—Maximum, 102, at Cordele, 15th; minimum, 51, at Lithia Springs, 14th; greatest monthly range, 45, at Lithia Springs; least monthly range, 19, at Hepzibah.

**Precipitation.**—Greatest monthly, 13.93, at Toccoa; least monthly, 1.11, at Diamond.

**Wind.**—Prevailing direction, southeast.—*Park Morrill, Local Forecast Official, Weather Bureau, Atlanta, director.*

#### ILLINOIS.

**Temperature.**—The mean was 1.1 above the normal; maximum, 105, at McLeansborough, 24th; minimum, 42, at Mascoutah, 4th.

**Precipitation.**—The average was 1.10 above the normal; greatest monthly, 13.09, at Aurora; least monthly, 1.50, at Louisville.

**Wind.**—Prevailing direction, southwest.—*John Craig, Observer, Weather Bureau, Springfield, director.*

#### INDIANA.

**Temperature.**—The mean was 1.2 above the normal; maximum, 96, at Princeton, 16th and 24th; minimum, 43, at Valparaiso, 1st; greatest monthly range, 48, at Valparaiso; least monthly range, 22, at Butlerville.

**Precipitation.**—The average was 0.94 above the normal; greatest monthly, 10.73, at Valparaiso; least monthly, 1.99, at Mount Vernon.

**Wind.**—Prevailing direction, southwest.—*Prof. H. A. Huston, La Fayette, director; C. F. R. Wappenhans, Local Forecast Official, Weather Bureau, assistant.*

#### IOWA WEATHER AND CROP SERVICE.

**Temperature.**—The mean was about 1.0 below the normal; maximum, 102, at Glenwood, 15th and 29th; minimum, 42, at Bancroft and Centerville, 2d; greatest monthly range, 54, at Atlantic and Glenwood; least monthly range, 37, at Fort Madison.

**Precipitation.**—The average was about normal; greatest monthly, 14.16, at Dubuque; least monthly, 0.67, at Glenwood.

**Wind.**—Prevailing direction, southeast.—*J. R. Sage, Des Moines, director; G. M. Chappel, Local Forecast Official, Weather Bureau, assistant.*

#### KANSAS.

**Temperature.**—The mean was 0.2 above the normal; maximum, 109, at Lakin, 8th; minimum, 33, at Hays City, 26th; greatest monthly range, 74, at Lakin; least monthly range, 46, at Lawrence and Sedan.

**Precipitation.**—The average was 2.65 below the normal; greatest monthly, 4.69, at McPherson; least monthly, 0.32, at Manhattan.

**Wind.**—Prevailing direction, southwest.—*Prof. J. T. Lovewell, Topeka, director; T. B. Jennings, Observer, Weather Bureau, assistant.*

#### KENTUCKY.

**Temperature.**—The mean was 2.0 above the normal; maximum, 101, at Bowling Green, 16th; minimum, 48, at Louisa, 27th; greatest monthly range, 51, at La Grange; least monthly range, 29, at Russellville.

**Precipitation.**—The average was slightly below the normal; greatest monthly, 8.45, at South Fork; least monthly, 2.43, at Pellville.

**Wind.**—Prevailing direction, southwest.—*Frank Burke, Observer, Weather Bureau, Louisville, director.*

#### LOUISIANA.

The unusual amount of rainfall damaged crops.

**Temperature.**—The mean was 1.5 below the normal; maximum, 102, at Liberty Hill, 11th; minimum, 46, at Winnsborough, 3d and 4th; greatest monthly range, 52, at Winnsborough; least monthly range, 21, at Port Eads.

**Precipitation.**—The average was 2.88 above the normal; greatest monthly, 17.83, at Cameron; least monthly, 2.16, at Natchitoches.

**Wind.**—Prevailing direction, south.—*George E. Hunt, Local Forecast Official, Weather Bureau, New Orleans, director.*